

11. ECOSYSTEM MANAGEMENT - GENERAL

*“In nature there are neither rewards nor punishments;
there are consequences.”¹⁵*

Although Fort Richardson’s natural resources program traditionally has been based on multiple-use management philosophies, military training always has been the primary land use. This philosophy will continue in 1998–2003 with one important addition—maintenance of functional ecosystems will become the goal of Fort Richardson land and natural resources management programs. “Realistic training lands” are often quoted as essential needs by military trainers. This translates into functional ecosystems that can be sustained indefinitely.

Ecosystems that lose this “functionality” become degraded, and loss of “realism” for training follows. This is contrary to the commitment for sustained military training lands (or “no net loss” in the capability of training lands to support the military mission). Thus, the future of Fort Richardson, its military mission, and its community depends on maintaining functional ecosystems.

Biodiversity conservation is an international commitment, and ecosystem management is a means to achieve this commitment. This INRMP encompasses biodiversity conservation and ecosystem management, as stated in the two Sections 11-1 and 11-2.

The purpose of this section is to:

- ▶ Describe biodiversity and ecosystem management with regard to Department of Army implementation and their impacts on this INRMP.
- ▶ Describe how the formerly emphasized program elements (Fish and Wildlife, Forestry, Land Management, etc.) fit within the new INRMP format and integrate with each other.

- ▶ Describe how the relatively new ITAM program fits within the new INRMP format and integrates with programs involving forest, land, and fish and wildlife management.

11-1 Conservation of Biodiversity

Biological diversity (biodiversity) refers to the variety and variability among living organisms and the environment in which they exist. Biodiversity has meaning at numerous levels including ecosystem diversity, species diversity, and genetic diversity (The Keystone Center, 1996).

Harvard Professor E.O. Wilson, a leading authority on biodiversity, lists five actions to protect biodiversity:

- (1) Survey the world’s fauna and flora
- (2) Create biological wealth
- (3) Promote sustainable development
- (4) Save what remains
- (5) Restore the wildlands

The DOD is developing a policy on biodiversity that will use the INRMP process as the implementation tool. A first step in this process was the development of *A Department of Defense (DOD) Biodiversity Management Strategy* (The Keystone Center, 1996). This Strategy identifies the following five reasons to conserve biodiversity on military lands:

- (1) Sustain natural landscapes required for the training and testing necessary to maintain military readiness

¹⁵ Ingersall.

- (2) Provide the greatest return on the Defense investment to preserve and protect the environment
- (3) Expedite the compliance process and help avoid conflicts
- (4) Engender public support for the military mission
- (5) Improve the quality of life for military personnel

The Keystone Center's report (1996) notes that the challenge is "to manage for biodiversity in a way that supports the military mission." It identifies the INRMP as the primary vehicle for implementing biodiversity protection on military installations. The model process developed within the strategy includes the following principles:

- ▶ Support the military mission
- ▶ Use joint planning between natural resources managers and military operations personnel
- ▶ Integrate biodiversity conservation into INRMP, ITAM, and other planning protocols
- ▶ Involve internal and external stakeholders up front
- ▶ Emphasize the regional (ecosystem) context
- ▶ Use adaptive management
- ▶ Involve scientists and use the best science available
- ▶ Concentrate on results

This INRMP thoroughly employs the biodiversity concept throughout, including:

- ▶ Monitoring and inventory efforts, which are critical to adaptive management (Sections 12-3, 12-4, and 15-3)
- ▶ Protection for sensitive areas with special protection for rare species and communities (Section 13-5)
- ▶ Use of native species and reduced landscaping (Section 14-13)

- ▶ Wetlands management (Section 14-9)
- ▶ Restrictions on outdoor activities that negatively affect biodiversity (Sections 13-3, 13-5 and 18-5)

This INRMP may need to be adjusted when the Department of Army and USARPAC policies on biodiversity are completed.

11-2 Ecosystem Management

Ecosystem management is not articulated formally in law, but its basic concepts have strong legal compliance aspects, especially within the Endangered Species Act, Sikes Act, and other laws such as the Clean Water Act and NEPA. Ecosystem management is a philosophy that will help conserve biodiversity and maintain fully-functional ecosystems.

The DOD's goal¹⁶ with regard to ecosystem management is: *"To ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity. Over the long term, that approach shall maintain and improve the sustainability and biological diversity of terrestrial and aquatic (including marine) ecosystems while supporting sustainable economies, human use, and the environment required for realistic military training operations."*

Principles and guidelines to achieve this goal are as follows:

- ▶ Maintain and improve the sustainability and native diversity of ecosystems
- ▶ Administer with consideration of ecological units and time frames
- ▶ Support sustainable human activities
- ▶ Develop a vision of ecosystem health
- ▶ Develop priorities and reconcile conflicts
- ▶ Develop coordinated approaches to work toward ecosystem health
- ▶ Rely on the best science and data available

¹⁶ DOD Instruction Number 4715.3, *Environmental Conservation Program*, May 3, 1996, specifically Enclosure 6.

- ▶ Use benchmarks to monitor and evaluate outcomes
- ▶ Use adaptive management
- ▶ Implement through USARAK plans and programs

Ecosystem management will become the basis for future management of DOD lands and waters. In this context, ecosystem management will include the following:

- ▶ Ecological approach: There will be a shift from individual species management to the management of ecosystems
- ▶ Partnerships: Ecosystems cross political boundaries, creating the need for cooperation, coordination, and partnerships essential for managing ecosystems
- ▶ Participation: Public needs and desires will be emphasized in management decisions
- ▶ Information: The best available scientific information will be used to select technologies to be used in managing natural resources
- ▶ Adaptive management: Adaptive management techniques will be applied incrementally as they are identified

Ecosystem management provides a means for USARAK to protect biodiversity and continue to provide high-quality military readiness. USARAK is a user of land, both in terms of military missions and supplying renewable natural resource products. Ecosystem management incorporates both protection and use within a management program.

USARAK will use ecosystem management concepts to guide its program through the next five years and beyond. This management philosophy enables USARAK to conduct military training while protecting natural resources upon which the quality of training ultimately depends. Ecosystem management also helps ensure compliance with environmental laws and perpetuation of renewable natural resources products.

11-3 Integrated Natural Resources Management

This INRMP provides the framework for an ecosystem-based approach to natural resources management. Sections 12 through 19 address protection, management, and conservation of natural resources. The traditional military natural resources planning philosophy of separating fish and wildlife, land management, forestry, ITAM, and other programs has evolved into an integrated, ecosystem-based management of all natural resources.

Natural resources management has never been split into separate organizations at Fort Richardson. Land management, forest management, and fish and wildlife management have evolved together for over 20 years. The ITAM program is a recent addition to this integration process. In 1972, Fort Richardson was one of the first installations to integrate natural resources and environmental compliance into a single organization. This INRMP continues that trend of program integration. Products from individual programs (fish and game, rehabilitated land, endangered species, forest products, and recreation) are secondary to functional ecosystems.

Fort Richardson has been collecting baseline data and preparing management plans for over two decades. The INRMP consolidates this information into a single integrated program. A GIS is being used to make data more accessible to the entire USARAK Command and others participating in military mission planning and ecosystem management.

11-4 Partnerships

Partnerships are critical to the success of ecosystem management. USARAK's relationships with its INRMP signatory partners, the BLM, USFWS, and ADF&G are long-standing and will continue to be maintained. Additionally, cooperative efforts will be developed with the U.S. Department of Agriculture (USDA), ADNR, ADEC, and NRCS, especially in areas of soil, water, and vegetation surveys and rehabilitation. Three major Corps of Engineers laboratories, WES, CRREL, and Construction Engineering Research Laboratory (CERL), have been important to the post's natural resources program.

Both the Anchorage and Fairbanks campuses of the University of Alaska are involved in the Fort Richardson natural resources program, as are others such as CSU and Oregon State University. The Municipality of Anchorage and Elmendorf AFB are neighboring interests with considerable stakes in natural resources management on Fort Richardson.

11-5 Integrated Training Area Management

ITAM is an Army-wide program to provide quality training environments to support the Army's military mission. ITAM was initiated with the realization that Army training lands were being degraded to the point where their capabilities to sustain military missions were in jeopardy. ITAM entails monitoring the quality of training lands, providing data needed to make land-use decisions, creating an awareness among land users about the importance of good land stewardship, preventing damage to land, and repairing damaged lands.



Healthy ecosystems provide quality training opportunities.

As part of the ITAM budgetary and planning process (ODCSOPS, 1995a), the three USARAK posts have been designated as a special Category I installation. Category I installations are the largest installations, with critical training land missions, and with greatest environmental sensitivity to missions (ODCSOPS, 1995b). This designation of three posts as a single Category I installation was made with the understanding that an increase in the scope of the military mission might require a redesignation of each of the three posts individually.

11-5a Goals and Objectives

Goals and objectives specific to ITAM are found in the ITAM Program Strategy, Section 2.1 (ODCSOPS, 1995b). These have been modified specifically for USARAK's needs, and are as follows:

- ▶ Establish an environmental baseline inventory of the conditions of natural and cultural resources on the training land
 1. Collect, compile, and update tabular data on species that occur on Fort Richardson
 2. Collect, compile, update, and maintain spatial data in the geographic information system
- ▶ Periodically monitor and assess the condition of the environment in relation to training activities, natural causes, and other land use
 1. Monitor and assess long-term ecological and land use trends
 2. Determine training land status and its capability for supporting military training.
 3. Monitor and assess training area rehabilitation
 4. Monitor erosion repair sites to assess restoration
- ▶ Conserve, repair, and maintain training land.
 1. Repair and maintain training land through the LRAM program.
 2. Repair erosion sites.
- ▶ Manage training space, training strategies, and environmental conditions to sustain training readiness of Army forces.
- ▶ Establish a baseline of training areas and ranges required and available at each post, including all future training requirements based on force structure changes and new equipment fielding plans.
- ▶ Educate training space users, including both military and civilians, in their responsibilities

to minimize land maintenance and maneuver damage to the environment, and to comply with appropriate environmental laws and regulations.

- Support environmental and natural resource management on Fort Richardson.

11-5b Program Status

USARAK has an ongoing LCTA program and is developing Training Requirements Integration (TRI), LRAM, and Environmental Awareness programs for Fort Richardson. The GIS is rapidly becoming an important database allowing USARAK to make wise land management decisions. ITAM technology is included within this INRMP. Its individual programs are found in Sections 12, 13, and 14.

The program, originally developed by Army environmental scientists, is now the responsibility of the Office of the Deputy Chief of Staff, Operations (ODCSOPS). USARAK will continue to implement the ITAM program through services provided by DPW Environmental Department to DPTSM.

11-5c ITAM Steering Committee

USARAK will create an ITAM Steering Committee, chaired by the Director, DPTSM, to provide program direction from the military training community. The objective of the Steering Committee will be to provide sustained, quality, military training environments on USARAK posts. The committee will have representatives from troops stationed on USARAK posts, and representatives from Natural Resources Branch and Range Control. This steering committee will meet at least twice annually.

11-5d ITAM Action Plan

USARAK will develop an ITAM Action Plan for inclusion into this INRMP (in Appendix 1). Appendix 1 contains a description of the Plan, its compliance authorities, and budget priority.

11-6 Fish and Wildlife Management

11-6a Background

Fish and wildlife management at Fort Richardson is built upon a national tradition of game manage-

ment to support hunting and fishing. In recent years, this base has broadened, driven by endangered species legal requirements and a growing recognition of the importance of nongame species in ecosystem functions. Even more recently, there has been an emphasis on general inventories of fauna and flora, and identifying special areas of biological significance.

Much of the data needed to build a “nongame” program as part of managing ecosystems has been, or is being, collected. Data collection will continue as part of program expansion. The real challenge will be developing and implementing management programs for nongame species and their habitats, and maintaining high quality game management during a period of declining budgets and personnel.



Wildlife watching.

11-6b Future Plan Development

This INRMP is very specific when dealing with some aspects of fish and wildlife management, but lacks specificity in other areas. This is indicative of areas where the program needs further development.

Monitoring and management programs for fish and wildlife habitat and populations are included in Sections 12-3, 12-4, 14-3, 14-4, 14-5, 14-6, 14-7, 14-8, and 14-9. As part of the development of the fish and

wildlife program, USARAK is committed to additional planning processes and actions during 1998-2003 as follows:

- ▶ Habitat Management Action Plan
- ▶ Wildlife Inventory and Monitoring Action Plan
- ▶ Wetland Management Action Plan
- ▶ Watchable Wildlife Action Plan

Appendix 1 contains a description of these plans, their compliance authorities, and budget priorities.

To conserve biodiversity, USARAK will ensure that all wildlife management decisions take an ecosystem management approach, are coordinated with other natural resource management objectives, and do not jeopardize or contradict them.

11-7 Forest Management

11-7a Overall Management Program

Forest management is carried out on approximately two-thirds of Fort Richardson (about 40,000 acres). Small-scale, non-commercial forest cutting occurs for military training, site clearance for construction projects, and wildlife management. Beginning in 1979, clearcutting was initiated for regeneration of moose habitat. These treatments have affected 90 acres. An additional 15 acres are scheduled for annual clearcutting.



Approximately two-thirds of Fort Richardson is forested.

Forest management at Fort Richardson will continue to focus on managing native forest ecosystems as described in Section 8-1c. A major challenge is to manage spruce, considering the negative impacts of the spruce bark beetle. Problems involving commercial timber sales on Army/BLM co-managed lands are considerable. As discussed in Section 14-2f, it

is not practicable to consider management of commercial timber resources on Fort Richardson until timber sale mechanisms are straight-forward and markets are available in the immediate area. Forest ecosystem management will emphasize creating balanced environments for military training, wildlife habitat, and opportunities for outdoor recreation compatible with the military mission and ecosystem sustainability.

11-7b Future Program Development

This INRMP is not specific about most aspects of managing the forest ecosystem. Information concerning current forest management and monitoring activities are included in Sections 12-3, 13-5, and 14-2. As part of the process of developing the forest ecosystem management program, USARAK will prepare a Forest Management Action Plan as described in Appendix 1.

11-8 Eagle River Flats

ERF is a 2,165 acre estuarine salt marsh in the northwestern portion of Fort Richardson, used as the primary ordnance impact area for the post since the mid-1940s. It is also an important habitat for waterfowl, and a variety of other wildlife species.



ERF is a 2,165 acre estuarine salt marsh.

Beginning in 1980, unusually high numbers of waterfowl carcasses were found in ERF. A study of the problem, initiated in 1987, indicated that chemicals from ordnance were the likely cause of the mortalities. Training was suspended in the area in 1990. It was discovered that white phosphorous was the cause of the high mortality rate, and in 1992, training resumed under fairly stringent restrictions.

Cleanup methods now being tested and implemented at ERF involve a wide variety of environmental, natural resource, and engineering technologies (CH2M Hill, 1994b).



Cleanup strategies employed on ERF included dredging, draining, and capping contaminated areas.

For detailed information on the ERF project, see the *Eagle River Flats, Comprehensive Evaluation Report* (CH2M Hill, 1994b) or studies identified within this report. This INRMP is consistent with the ERF project, and supports and uses the results.

11-9 Coastal Management Zone

USARAK will implement this INRMP in a manner that is consistent “to the maximum extent practicable with the Alaska Coastal Management Program (ACMP).” Although federal lands are exempt from the Coastal Zone Management Act, elements of this INRMP may affect lands within the purview of this Act.